

To: Seter, David[Seter.David@epa.gov];
jbatchelder@envirosolve.com[jbatchelder@envirosolve.com]; gdavis@sspa.com[gdavis@sspa.com];
Chatham, James R[James.Chatham@bp.com];
czimmerman@brwnald.com[czimmerman@brwnald.com]; sriese@ensci-inc.com[sriese@ensci-inc.com]; dan.ferriter@copperenv.com[dan.ferriter@copperenv.com];
jim.jonas@copperenv.com[jim.jonas@copperenv.com]; Mahon, Mike (COPPER ENVIRONMENTAL CONSULTING)[mike.mahon@copperenv.com]; candrews@sspa.com[candrews@sspa.com]; Johnson, Brian S[Brian.S.Johnson@bp.com]; ghatch.ypt-nsn.gov[ghatch@ypt-nsn.gov];
cynthiao@wrpt.us[cynthiao@wrpt.us];
dmcginnis@mcginnisandassociates.com[dmcginnis@mcginnisandassociates.com];
peters@mcginnisandassociates.com[peters@mcginnisandassociates.com];
jgardner@ndep.nv.gov[jgardner@ndep.nv.gov]; jrcollins@ndep.nv.gov[jrcollins@ndep.nv.gov];
drdavis@blm.gov[drdavis@blm.gov];
tmassey@singatsepeakservices.com[tmassey@singatsepeakservices.com];
John.McMillan@CBIFederalServices.com[John.McMillan@CBIFederalServices.com];
julian.isham@cbi.com[julian.isham@cbi.com]; Levine, Herb[Levine.Herb@epa.gov]; Dirscherl, Christopher[Dirscherl.Christopher@epa.gov];
'tmassey@singatsepeakservices.com'['tmassey@singatsepeakservices.com'];
'john@gbrw.org'['john@gbrw.org']; 'susan@gbrw.org'['susan@gbrw.org'];
'john.krause@bia.gov'['john.krause@bia.gov']; Acree, Steven[Acree.Steven@epa.gov]; Ford, Robert[Ford.Robert@epa.gov]; Ball, Harold[Ball.Harold@epa.gov];
edixon@mcginnisandassociates.com[edixon@mcginnisandassociates.com]; Richardson, Doc (COPPER ENVIRONMENTAL CONSULTING)[doc.richardson@copperenv.com];
rlmiller@broadbentinc.com[rlmiller@broadbentinc.com]
From: Oman, Jack
Sent: Tue 10/18/2016 7:10:40 PM
Subject: RE: EPA Direction to ARC Anaconda OU1 BGQA
[image001.emz](#)

Dave,

Thank you for your comments on the BGWQA. ARC will revise this document and submit to EPA within 45 days of your transmittal. We will notify EPA if this schedule changes.

Thanks,

Jack Oman

Project Manager

Atlantic Richfield Company

4 Centerpointe Drive

La Palma, CA 90623-1066

(657) 529-4581 office

(714) 670-5195 fax

(714) 330-1706 mobile

jack.oman@bp.com

From: Seter, David [mailto:Seter.David@epa.gov]

Sent: Tuesday, September 27, 2016 3:17 PM

To: Oman, Jack; jbatchelder@envirosolve.com; gdavis@sspa.com; Chatham, James R; czimmerman@brwnald.com; sriese@ensci-inc.com; dan.ferriter@copperenv.com; jim.jonas@copperenv.com; Mahon, Mike (COPPER ENVIRONMENTAL CONSULTING); candrews@sspa.com; Johnson, Brian S; ghatch.ypt-nsn.gov; cynthiao@wrpt.us; dmcginnis@mcginnisandassociates.com; peters@mcginnisandassociates.com; jgardner@ndep.nv.gov; jrcollins@ndep.nv.gov; drdavis@blm.gov; tmassey@singatsepeakservices.com; John.McMillan@CBIFederalServices.com; julian.isham@cbi.com; Levine, Herb; Dirscherl, Christopher; 'tmassey@singatsepeakservices.com'; 'john@gbrw.org'; 'susan@gbrw.org'; 'john.krause@bia.gov'; Acree, Steven; Ford, Robert; Ball, Harold; edixon@mcginnisandassociates.com; Richardson, Doc (COPPER ENVIRONMENTAL CONSULTING); rlmiller@broadbentinc.com

Subject: EPA Direction to ARC Anaconda OU1 BGQA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105

September 27, 2016

Jack Oman

Project Manager

Atlantic Richfield Company

4 Centerpointe Drive

La Palma, CA 90623-1066

Re: Anaconda Copper Mine OU1

Background Water Quality Assessment

Dear Jack,

The United States Environmental Protection Agency (EPA) has completed its review of the following document submitted by Atlantic Richfield Company (ARC): *Response to EPA Comments on the Background Water Quality Assessment – Revision 2, June 14, 2016*. The issues raised in this document were discussed by ARC, EPA, and other technical stakeholders at a meeting held on June 29, 2016, in Reno, Nevada.

EPA appreciates the technical analysis of background conditions that has been performed by ARC and appreciates the input that has been provided by the technical stakeholder group. Given that this topic has been under discussion for some time now, EPA believes it is in the best interest of overall progress toward completing the OU1 Groundwater Remedial Investigation Report to come to closure on the remaining issues raised by Background Water Quality Assessment Revision 2 as informed by the exchange of comments between EPA and ARC.

Therefore, based on the attached technical rationale, EPA is providing the following direction to ARC. It is EPA's expectation that ARC will produce and submit to EPA within 45 calendar days a third, and hopefully final, revision to the Background Water Quality Assessment document, which incorporates the following:

1. Determination of 95/95 Upper Tolerance Limits (UTL)

Having carefully considered its technical exchange with ARC and the stakeholder group, EPA has reached a conclusion with respect to the background wells to be included in

the data sets for the Southwest Recharge Area (SWRA) and Southeast Recharge Area (SERA). These data sets are to be applied to the calculation of UTLs to be used in determining the extent of mine impacted groundwater. EPA's direction is as follows:

Southwest Recharge Area (SWRA)

Monitoring wells B/W-17B and PLMW-4S are to be excluded from the background data set based on the attached technical analysis. Briefly stated:

- B/W-17B has shown a continuous increasing trend for uranium during years 2012-2013, followed by a continuous decreasing trend during years 2013-2015. Further, examination of the purging logs indicates that water sampled from this well often consists largely of water obtained from borehole storage rather than fresh formation water. For these reasons, B/W-17B is not a suitable candidate for inclusion in the selection of background wells.
- PLMW-4S has demonstrated much higher uranium concentrations than other wells in the data set which results in an increase in the calculated UTL by a factor of three. Further, the proximity of well PLMW-4S to Weed Heights, as well as the fact that the well is located within the capture zone of the Pit Lake, lead EPA to conclude this well may represent a unique set of conditions and is not truly upgradient of the area where the UTLs are to be applied.

Southeast Recharge Area (SERA)

Monitoring wells B/W-39B and WRA3-3B are to be excluded from the background data set based on the attached analysis. Briefly stated:

- BW-39B, while currently upgradient of the sulfide tailings pond, during Anaconda operations plausibly may have been impacted by mounding beneath the pond. This possibility is supported by the magnitude of sulfate concentrations in this well, which are much closer to those of the bedrock wells installed directly beneath the pond than to other bedrock wells along the eastern property boundary.

- WRA3-3B is located in a zone in which fracture density and patterns that will control groundwater flow directions in bedrock have not been characterized. Further, the proximity of this well to areas where process fluids were handled and applied to the waste rock makes it plausible sulfate concentrations in the well may represent site-related impacts.

2. Delineating Northern Extent of Impact

Delineation in the revision to the Background Groundwater Quality Assessment should reflect ARC's responses to comments, dated June 14, 2016, which appear to indicate agreement with EPA on the current northern extent of impact.

3. Delineating Western Extent of Impact

As reflected in the attached technical analysis, EPA has reached the conclusion that mine-impacted groundwater likely does not extend westward as far as well B/W-16S but more likely extends to an area between wells B/W-16S and B/W-33S. Please see the attached technical analysis. Delineation in the revision to the Background Groundwater Quality Assessment should reflect EPA's conclusions.

4. Delineating Eastern Extent of Impact

It is EPA's understanding that ARC agrees that mine-impacted groundwater in the deeper zone extends as far east as approximately the area of B/W-27. Based on the available data, it appears that the approximate boundary of mine-impacted groundwater may be located between B/W-27 and B/W-50. Delineation in the revision to the Background Groundwater Quality Assessment should reflect EPA's conclusions. Please see the attached technical analysis.

5. Estimation of the Extent of Mine-Impacted Groundwater

The revision to the Background Groundwater Quality Assessment will estimate the extent of mine impacted groundwater for all zones.

6. Extent of Mine-Impacted Groundwater-Arsenic

EPA concludes that development of a figure depicting the extent of mine impacted groundwater based on a site-wide UTL developed for arsenic will not be necessary in the revision to the Background Groundwater Quality Assessment. Please see the attached technical analysis.

7. Other

Please see the attached technical analysis for additional EPA responses to ARC's *Response to EPA Comments on the Background Water Quality Assessment – Revision 2, June 14, 2016*.

Please note that the attached technical analysis revises the figure depicting EPA's interpretation of the approximate current extent of mine-impacted groundwater. EPA's revised figure is based on its conclusions presented above about the western, northern, and eastern extent of mine-impacted groundwater for groundwater zones evaluated in: *Background Groundwater Quality Assessment Revision 2, July 2, 2015*. It is EPA's expectation that revised figures presented in the next, and hopefully final, revision to the Background Groundwater Quality Assessment will reflect EPA's conclusions. That having been said, in general, the extent of mine-impacted groundwater will likely be best conceptualized as a zone rather than a fine line due to many factors including the size of the site, age and complexity of the contaminant releases, and complexities of subsurface contaminant transport and fate.

Please contact me with any questions or concerns. EPA would appreciate a response from ARC committing to the submittal of a revision to the Background Groundwater Quality Assessment within 45 calendar days.

David A. Seter, P.E.

Remedial Project Manager

USEPA Region 9

Superfund Division (SFD-8-2)

75 Hawthorne Street

San Francisco, CA 94105

415-972-3250